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10/564,987	07/14/2006	Jean-Jacques Sacre	PF030118	7143

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Joseph S Tripoli
Thomson Licensing Inc
Patent Operations
P O Box 5312
Princeton, NJ 08543-5312

EXAMINER

CHWASZ, JADE R

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2872

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,987	Applicant(s) SACRE ET AL.	
	Examiner JADE R. CHWASZ	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10,11,13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10,11,13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments to the claims, in the submission dated 2/22/11, are acknowledged and accepted.

Response to Arguments

2. Applicant's arguments filed 2/22/11 have been fully considered but they are not persuasive. Applicants argue that the prior art cited does not teach or reasonably suggest a light beam having a divergence greater than or equal to 5 degrees on either side of the average direction of the beam. The Examiner respectfully disagrees. As shown in figure 1 of Shikama et al. the light source (21, lamp) emits a light that has a divergence greater than 5 degrees of the average direction of the beam. The light emitted by lamp 21 is emitted in several directions and focused to a point at the rod integrator via the elliptical mirror 22. The average direction of the lamp 21 is taken to be the optical axis of the device since all light is focused to a point on the optical axis. Accordingly, the average divergence is greater than 5 degrees of the average direction of the beam.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in France on 7/23/03. It is noted, however, that applicant has not filed a certified copy of the 03/08961 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 10, 11, 13, and 15-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

6. Claim 10 requires the illuminating device to comprise means for focusing the light beam emitted by the optical source close to the entry face of the integrator device. Specific means for focusing are not disclosed in the specification as originally filed.

7. Claims 11, 13, and 15-17 are dependent on claim 10 and inherit at least the same deficiencies as claim 10.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 10, 11, 13 and 15-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim element "means for focusing the light beam" of claim 10, is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize

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what structure, material, or acts perform the claimed function. Specific means for focusing are not disclosed in the specification as originally filed.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c) State on the record where the corresponding structure, material, or acts are set forth in the written description of the specification that perform the claimed function.

For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

11. Claims 11, 13, and 15-17 are dependent on claim 10 and inherit at least the same deficiencies as claim 10.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 10-11, 13, 15-17, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yajima (JP 04267203 A) in view of Lu (2004/0160578) (herein after Lu '578) and Shikama et al. (5,634,704).

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Consider claims 10 and 15, Yajima discloses (e.g. figure 1) an illuminating device comprising an optical source (1, light source) emitting an unpolarized light beam (2, randomly polarized beam), a polarizing beam splitter (4, polarization splitting layer) included between first faces (middle side length of each prism) of a first and second transparent prism (right and left sides of prism 3 that are separated by the polarization splitting layer), which prisms each have a second exit face (shortest side of each prism) both situated within one and the same plane, said first faces (middle side length of each prism) and second faces (shortest side of each prism) of each prism being perpendicular; the unpolarised light beam (2, randomly polarized beam) penetrating into the first prism (e.g. the left side of prism 3) through a third face of this first prism (hypotenuse of the left side of prism 3) and reaching the polarizing beam splitter (4, polarization splitting layer) that transmits the light with a first polarization direction (p-polarized light is transmitted) and that reflects the light with a second polarization direction (s-polarized light is reflected); the light transmitted by the polarizing beam splitter being transmitted to a third face of the second prism (hypotenuse of the right side of prism 3) that reflects it toward the said second exit face of the second prism (shortest side of the right and left sides of prism 3), and the light reflected by the polarizing beam splitter being transmitted to said third face of the first prism (hypotenuse of the left side of prism 3) that reflects it toward said second exit face of the first prism (shortest side of the left side of prism 3), wherein said illuminating device also comprises polarization rotator device associated with only one of the second exit faces (e.g. the right side of prism 3) [abstract].

However, Yajima does not disclose that the light source emits a light beam having a divergence greater than or equal to 5 degrees on either side of the average direction of the light beam, that the light integrating device has one entry face that is optically coupled to said second exit faces of the prisms and has one exit face, different from the entry face that is optically coupled with a liquid crystal layer of said spatial light modulator, wherein said light integrating device, when receiving the beams reflected by the third faces of the prisms through said entry face, delivers a beam through said exit face, such that where illumination of the exit face is substantially homogeneous over this exit face such as to illuminate through said exit face the liquid crystal layer of said spatial light modulator in a uniform manner, wherein the polarizing beam splitter comprises a grid polarizer, situated between the first faces of the first and of the second prism or that the illuminating device also comprises means for focusing the light beam emitted by the optical source close to the entry face of the integrator device.

Yajima and Lu '578 are related as optical systems. Lu ('578) discloses (e.g. figure 2) a device (30, projector lens) that is optically coupled to exit faces of the prisms and receives beams reflected by the third faces of the prisms through an entry face, wherein the two prisms have a grid polarizer located between first and second faces of the second prism on the first face of the first prism [0019-0020]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the polarizing splitting portion of the modified Yajima reference to include a grid polarizer as taught by Lu ('578) in order to easily select the polarization of light that is needed for a given system.

However, the modified Yajima reference does not disclose that the light source emits a light beam having a divergence greater than or equal to 5 degrees on either side of the average direction of the light beam, a spatial light modulator and a light integrating device that has an exit face and delivers a beam such that illumination of the exit face is substantially homogeneous over the exit face so as to illuminate through said exit face the liquid crystal layer of said spatial light modulator in a uniform manner or that the illuminating device also comprises means for focusing the light beam emitted by the optical source close to the entry face of the integrator device. Yajima, Lu et al. and Shikama et al. are related as optical systems.

Shikama et al. disclose (e.g. figure 1) a light source (21, lamp) that emits a light beam having a divergence greater than or equal to 5 degrees on either side of the average direction of the light beam (The light emitted by lamp 21 is emitted in several directions and focused to a point at the rod integrator via the elliptical mirror 22. The average direction of the lamp 21 is taken to be the optical axis of the device since all light is focused to a point on the optical axis. Accordingly, the average divergence is greater than 5 degrees of the average direction of the beam). Shikama et al. also disclose a spatial light modulator (61, LCD panel), and a light integrating device (24, rod integrator) that has an exit face and delivers a beam such that illumination of the exit face is substantially homogeneous over the exit face so as to illuminate through said exit face the liquid crystal layer of said spatial light modulator in a uniform manner [col. 8, lines 16-39 and col. 9, lines 1-19]. The illuminating device (21, lamp) also comprises means for focusing (22, elliptical mirror) the light beam emitted by the optical source

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close to the entry face of the integrator device (light is focused to a point at the entry face of rod integrator 24 via the elliptical mirror). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of the modified Yajima reference, as taught by Shikama et al, to include a spatial light modulator and a light integrating device in order to provide good uniformity of illumination within the emitting end of the rod integrator.

The means-plus- function claim language invokes 35 USC 112, 6th paragraph, by meeting the following test: (1) "means for" or "step for" language (as seen above and in the claim); (2) said language is further modified by functional language (i.e., "means for focusing the light beam"); (3) and the modifying language does not constitute sufficient structure, material, or acts for achieving the specified function (i.e., such language is not included here), MPEP §2181. The reference discloses the claimed corresponding structure or equivalent thereof, *In re Morris*, 44 USPQ2d 1023 (Fed. Cir. 1989).

Consider claim 11, the modified Yajima reference discloses (e.g. figure 1 of Yajima) an illuminating device wherein non-right angles of the prisms are substantially equal to 60 degrees opposite the first faces and to 30 degrees opposite the second face, and in that the average direction of the light beam is substantially perpendicular to the third face of the first prism as it penetrates into this prism (the right and left sides of prism 3 appear to be 30, 60, 90 degree prisms since the polarization separating layer splits the prism 3 in half) [abstract of Yajima].

Consider claim 16, the modified Yajima reference discloses (e.g. figure 2 of Lu '578) an illuminating device wherein an air gap is provided between, on the one hand, the grid polarizer and the first face of the first or of the second prism on which it is formed and, on the other, the first face of the second or of the first prism, respectively facing it [Lu '578; 0019-0020].

Consider claim 17, the modified Yajima reference does not disclose the index of the material of the prisms is less than or equal to 1.5. Note that the Court has held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination; See **Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945)**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a material that has an index that is equal to or less than 1.5, since it has been held to be within the ordinary skill of a worker in the art to select a known material on the basis of its suitability for the intended use. One would have been motivated to select an index less than or equal to 1.5 in order to control reflection/refraction of the light beams within the prisms.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JADE R. CHWASZ whose telephone number is (571)272-8199. The examiner can normally be reached on Monday to Friday 6:00 am - 3:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
/Jade R Chwasz/
Examiner, Art Unit 2872

/Stephone B. Allen/
Supervisory Patent Examiner
Art Unit 2872